A beak-like element (10) for use in combination with a construction toy playset includes a body (11) defined by generally parallel sidewalls (13) in a spaced relationship on each side of a curved wall (16) and a back wall (15) to define an open-faced interior cavity (12). The back wall (15) of the element further defines a female connector (24, 25, 29) for securing the element (10) to a cooperating male connector (50) within the construction toy playset. The element is preferably fabricated as a molded plastic component having plural teeth (20) formed in the sidewalls and the end portion of the curved wall.
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BEAK-LIKE ELEMENT FOR CONSTRUCTION TOY PLAYSET

SPECIFICATION

Field of the Invention

This invention relates generally to toy construction sets and particularly to a novel element configured for efficient utilization in toy construction sets.

Background of the Invention

Construction toy sets have proven to be a long lasting and popular type of toy due in no small part to the full endorsement of educators and child development experts. Such experts appreciate the skill development that occurs as children construct various items of complexity from relatively simple components. Early playsets utilize various stamped metal links together with plates all defining a plurality of apertures therein. The links and plates were variously configured and were joined using conventional fasteners such as screws and nuts. Another early type of construction toy set utilized wood in fabricating complex structures. The most popular of such sets utilized a plurality of elongated dowels together with pluralities of junction blocks having passages formed therein at various angles for joining the end portions of the dowels to each other.
In recent years the advent of construction toy sets which employ elements fabricated of molded plastic have become the most popular and widely used type of toy set. Molded plastic processes have several inherent advantages which toy practitioners were quick to realize in shifting from metal and wooden playsets. For example, plastic components may be molded at a relatively low cost notwithstanding complex shapes which would be impractical in other processes. Further plastic molded components can be fabricated of lightweight material in a variety of shapes, colors, and sizes. In addition, plastic elements are uniquely qualified to provide snap-fit attachment and removal of interlocking elements.

Snap-fit attachment is highly desirable in such construction toy sets due to the ease of use and the fact that no tools are required making the set highly desirable for younger children. In addition, the degree of fit, that is the insertion/withdrawal force, for snap-fit members may be adjusted to suit children of a selected age bracket.

U.S. Patent 4,789,369 issued to Lyman sets forth
TOY BUILDING BLOCKS WITH MULTIPLE PIVOTING INTERCONNECTIONS having a plurality of interlocking building blocks each resembling a seated bear. The building blocks mate in various combinations to facilitate the formation of long chains of building blocks.

U.S. Patent 4,813,903 issued to Furukawa, et al. sets forth a BLOCK TOY WITH INTEGRAL DRIVE SHAFT in which a block unit of a running toy includes a hollow
cube or block having a concave portion for receiving another block and further includes convex portions for coupling to other block units. Various structures are shown fabricated of the basic coupling block.

U.S. Patent 5,172,534 issued to Milner, et al. sets forth CHAINABLE BUILDING BLOCKS formed of a plurality of detachably chainable links capable of being pivotally attached to one another to form stable geometric structures. Detents are provided at a plurality of pivot positions so as to preferentially hold the engaged links in a stable and precise position.

U.S. Patent 5,209,693 issued to Lyman sets forth a TOY BLOCK SET WITH DIVERSE FLEXIBLE CONNECTORS ON OPPOSING ENDS having a block-like housing supporting either a male or female connector set on one side and an oppositely oriented connector set on the remaining side. The upper surface of the connector block supports a plurality of cylindrical interlock posts. A cooperating block includes a block housing having a first coupler on one side which is received within a coupler attachment and a socket arrangement which receives the opposite end of such a connector block.

U.S. Patent 5,653,621 issued to Yao sets forth a TOY BUILDING BLOCK PUZZLE having a plurality of differently shaped tall hollow blocks which includes lugs and slots on the sidewalls thereof. Protrusions and recessing are supported and defined upon the sides of the tall hollow blocks which facilitate attachment of similarly configured blocks to add three-
dimensional character to the block puzzle when assembled.

Summary of the Invention

Accordingly, it is a general object of the present invention to provide an improved construction toy playset element. It is a more particular object of the present invention to provide an improved element for construction toy playset which may be used in a variety of specialized configurations to form elements such as a set of jaws or a beak.

In accordance with the present invention, there is provided a beak-like construction toy set element for use in combination with a plurality of interlockable toy set elements and cooperating interlockable couplers, said beak-like construction toy set element comprising: a body defining a generally planar backwall having a slot formed therein and a curved wall extending from one end of the backwall; and a pair of sidewalls each joined to opposed sides of the backwall and the curved wall, the backwall, the curved wall and the sidewalls each defining an edge and each combining to form an enclosure having an open side defined by the edges; the body being releasibly attachable to a toy set coupler using the slot for engaging a coupler.

Brief Description of the Drawings

The features of the present invention, which are believed to be novel, are set forth with particularity in the appended claims. The invention, together with
further objects and advantages thereof, may best be understood by reference to the following description taken in conjunction with the accompanying drawings, in the several figures of which like reference numerals identify like elements and in which:

Figure 1 sets forth a perspective view of beak-like element for a construction toy playset;

Figure 2 sets forth a partially sectioned top view of a pair of the present invention beak-like elements supported to provide a closure pair such as a jaw set or beak;

Figure 3 sets forth a toy view of the present invention beak-like elements being utilized in an alternative fabrication; and

Figure 4 sets forth a partial side view showing the present invention beak-like element being utilized as a leg supported foot.

Description of the Preferred Embodiment

Figure 1 sets forth a perspective view of a beak-like element for construction toy playset fabricated in accordance with the present invention and generally referenced by numeral 10. Element 10 is preferably formed of a molded plastic material or the like and includes an element body 11 having a pair of opposed sidewalls 13 and 14 together with a curved wall 16 and a backwall 15. The combination of sidewalls 13 and 14, curved wall 16 and backwall 15 forms an open face element defining an interior cavity 12 therein.
Sidewalls 13 and 14 further define pluralities of teeth 20 and 22 respectively. Similarly, the bottom edge of curved wall 16 defines a plurality of teeth 21. While simple triangularly shaped teeth are shown for pluralities of teeth 20, 21 and 22, it will be apparent to those skilled in the art that differently shaped teeth may be used without departing from the spirit and scope of the present invention.

As mentioned above, element 10 is provided for use in a construction toy playset and thus will as illustrated below in Figures 2 through 4 interlockably or snap fit to other coupling elements within a standard construction toy playset to become a part of an assembly made thereby. In the embodiment set forth in Figures 1 through 4, a well known coupling system is utilized. With temporary reference to Figure 2 and concurrent reference to Figure 1, an exemplary male connector 50 is shown in Figure 2 having a cylindrical post 52 and a generally square coupling flange 51 supported thereby. Flange 51 further includes a plurality of corner facets such as facets 53 and 54. Male connector 50 is illustrative of all male connectors utilized in the well known connector structure for which element 10 is configured to be compatible and snap-fit attachable to any selected male connector.

Returning to Figure 1 with the above understanding of the male connector structure of the construction toy playset, backwall 15 is configured to define the standard cooperating female connector element which is able to snap-fit in attachment to a male connector such as male connector 50 (seen in
Figure 2). More specifically, backwall 15 defines a slot 24 and a cylindrical socket formed by socket portions 24 and 25 on each side of slot 24. In the preferred socket fabrication, socket portions 24 and 25 define a greater distance therebetween at the centers thereof than the width of slot 24. Finally, an expansion notch 26 is formed in the bottom portion of backwall 15 which facilitates the resilient expansion of slot 24 during the snap-fit attachment process.

Thus, in accordance with the present invention, element 10 forms a highly specialized construction toy playset element which is able to provide appearance not found in prior art toy playsets. Of particular interest is the use of curved wall 16 together with sidewalls 13 and 14 to form a beak-like or jaw-like element which when combined with a cooperating identical element in the manner seen in Figures 2 and 3 facilitates the fabrication of a realistic jaw or pincer or beak combination for use in an otherwise conventional well known construction toy playset. Further, additional flexibility is provided in the manner shown in Figure 4 in which the present invention element is utilized to simulate a foot. When thus used, the present invention element exhibits an unusual appearance.

Figure 2 sets forth a partially sectioned view of a construction toy playset assembly 30 having a plurality of conventional couplers and other elements such as beam elements supporting a pair of the present invention beak-like elements to form a pincer, jaw or beak structure. More specifically, assembly 30
includes a beam element 31 joined to a supporting structure by a coupler 32. Assembly 30 further includes a male/female coupler 33 also joined to beam element 31. Coupler 32 is a standard six way coupler having a cube shaped body supporting six male connectors on the six sides thereof. Beam element 31 includes female connectors (not shown) formed substantially in the same manner as the female connector shown on backwall 14 of element 10 in Figure 1. Thus, both male/female coupler 33 and coupler 32 include respective male connectors 37 and 36 for joining in a snap-fit attachment to beam 31. Male/female coupler 33 includes a male connector 50 having a coupling flange 51 defining facets 53 and 54 supported by a post 52. As mentioned above, each of the male connectors within assembly 30 are identically configured and cooperate with corresponding female connectors in snap-fit attachment.

Assembly 30 further includes a coupler 34 having a male connector 55 joined to one end of male/female coupler 33. Coupler 34 further includes a male connector 56 which receives and supports element 10 in the snap-fit attachment. In the attachment of element 10, male connector 56 is forced through slot 24 into socket portions 24 and 25 (seen in Figure 1) to secure element 10 against one side of coupler 34. It will be recalled that element 10 includes a pair of lock bars 27 and 28 (lock bar 28 shown in Figure 3) on each side of slot 24. The function of lock bars 27 and 28 is to provide a lock preventing rotation of the coupling flange of male connector 56.
Assembly 30 further includes a pivot coupler 35 fabricated in accordance with conventional fabrication techniques and including a male connector 38 which is received within a corresponding female connector (not shown) of coupler 34. Pivot coupler 35 includes a pivot element 39 which is pivotally movable with respect to the remaining portion of pivot coupler 35 and which is shown in dashed-line representation. Pivot element 39 further supports a male connector 40 having a coupling flange 41 and a post 42.

In accordance with the present invention, a second beak-like element 70 which is identical to element 10 is secured to pivot element 39 of pivot coupler 35 by snap-fit attachment to male connector 40. Thus, male connector 40 includes a coupling flange 41 and a post 42 while element 70 defines a cooperating female connector identical to that shown in backwall 15 of element 10 (seen in Figure 1). Accordingly, element 70 is pivotally secured upon pivot coupler 35 and is movable between the solid line position and dashed-line position shown in Figure 2 as indicated by arrow 77. In the assembly shown in Figure 2, a beak-like or jaw-like pincer is provided in which one side (element 10) is fixed while the remaining side is pivotable (element 70).

In the utilization of the present invention beak-like element for construction toy playset, a pair of closure-type elements are provided by adding a pair of the present invention elements to pivoting structure within an otherwise conventional construction toy playset.
Figure 3 sets forth a pair of the present invention elements utilized in a supporting assembly which includes pivotal motion of each element. Specifically, Figure 3 sets forth an assembly generally referenced by numeral 60 which is fabricated to pivotally support a pair of beak-like elements 10 and 70. As mentioned above, the entire structure shown in Figure 3 apart from elements 10 and 70 may be fabricated entirely in accordance with conventional fabrication techniques. In the example shown in Figure 3, a coupler 61 is joined to a pair of couplers 62 and 66 and is further joined to the remaining support structure of assembly 60 (not shown). A pivot coupler 63 having a male connector 64 is received within coupler 62. A beam 65 is snap-fit attached to pivot coupler 63 and further supports an element 70 fabricated in accordance with the present invention.

A pivot coupler 71 identical to pivot coupler 35 and pivot coupler 63 includes a male connector 72 which is snap-fit attached to coupler 66. The pivotal portion of coupler 71 is attached to a beam 73 which in turn is secured to a beam-like element 10. As described above, element 10 is formed of a curved wall 16, a pair of sidewalls 13 and 14 which in turn support pluralities of teeth 20 and 22. As is better seen in Figure 1, backwall 15 defines a female connector for receiving a male connector such as male connector 50 which includes a slot 24 and a lock bar 28. Accordingly, beam 73 defines a male connector 59 having a flange 68 and a post 79 which is received within slot 24 and rests within socket portions 25 and 29. It will be recalled that lock bars 27 and 28 are positioned alongside of the space occupied by the
flange portions of male connectors to prevent rotation of the beak-like elements.

Accordingly, elements 10 and 70 are supported by beams 73 and 65 respectively upon pivot couplers 71 and 63 respectively. The combination of pivot couplers 63 and 71 and beams 65 and 73 support beak-like elements 10 and 70 for pivotal movement about the pivot couplers. The structure in Figure 3 results in a pair of beak-like or jaw-like structures which are capable of an inward pincer-type movement with both sides being movable.

Figure 4 sets forth a partial view of the present invention beak-like element utilized in an alternative fashion simulating a foot or the like. Accordingly, an assembly 80 includes a beam element 81 representing a leg coupled to a pivot coupler 82 having a pivot element 83 thereon. Pivot element 83 supports a male connector 84. In accordance with the present invention, a beak-like element 10 is secured to male connector 84 in the above-described snap-fit attachment to form a foot-like member pivotally secured to pivot coupler 82. Thus, when rested upon a flat surface such as surface 85, element 10 greatly resembles a foot or the like.

While particular embodiments of the invention have been shown and described, it will be obvious to those skilled in the art that changes and modifications may be made without departing from the invention in its broader aspects. Therefore, the aim in the appended claims is to cover all such changes
and modifications as fall within the true spirit and scope of the invention.
THAT WHICH IS CLAIMED IS:

1. A beak-like construction toy set element for use in combination with a plurality of interlockable toy set elements and cooperating interlockable couplers, said beak-like construction toy set element comprising:

   a body defining a generally planar backwall having a slot formed therein and a curved wall extending from one end of said backwall; and

   a pair of sidewalls each joined to opposed sides of said backwall and said curved wall, said backwall, said curved wall and said sidewalls each defining an edge and each combining to form an enclosure having an open side defined by said edges;

   said body being releasibly attachable to a toy set coupler using said slot for engaging a coupler.

2. The beak-like toy set element set forth in claim 1 wherein at least two of said edges define a plurality of teeth therein.
### INTERNATIONAL SEARCH REPORT

**A. CLASSIFICATION OF SUBJECT MATTER**

- **IPC(7)**: A63H 3/16, 3/36
- **US CL.**: 446/ 100, 395

According to International Patent Classification (IPC) or to both national classification and IPC.

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

- **U.S.**: 446/ 85, 70, 99, 100, 424, 427, 428, 390, 391, 395, 470, 471

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EAST, 446/$.CCLS., BEAK, CLAW, SIDEWALLS, TEETH, SLOT

### C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<td>US 5,310,379 A (HIPPELY) 10 MAY 1994, SEE HEAD 42 WITH JAWS 43,44.</td>
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* Further documents are listed in the continuation of Box C.  

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**Date of the actual completion of the international search**: 15 FEBRUARY 2000

**Date of mailing of the international search report**: 21 MAR 2000

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